CLASSIFICATION [redacted] 25X1

CENTRAL INTELLIGENCE AGENCY

REPORT [redacted]

INFORMATION REPORT

CD NO. PROCESSING COPY

COUNTRY Hungary

DATE DISTR. 8 April 1958

SUBJECT [redacted]

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Kazincbarcika (fertilizer factory) (description, manpower, expected production, documentation)

PLACE ACQUIRED [redacted]

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DATE OF INFO. [redacted]

SUPPLEMENT TO REPORT NO. 25X1

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[redacted]

1. The Borsod Chemical Combine (Borsodi Vegyi Kombinat - BVK) is located in Kazincbarcika 2, 20 km north-northwest of Miskolc. It is subordinate to the Ministry for the Chemical Industry and for Power Supply. The direct superior of the combine is the main department for the inorganic chemical industry.

2. The following was obtained on the management of the combine:
Sandor Gor Nagy, chemical engineer, plant manager [redacted] chief of the entire combine
Imre Szentmiklosi, chief engineer [redacted] technical manager of the combine.
Sandor Babits, electro-engineer, chief engineer for power supply. [redacted]
Istvan Gedeon, chemist [redacted] in charge of the supervision and coordination of the production.
Lengyel (fnu), chief of the factory guard [redacted]
Tisi (fnu), AVH officer, AVH representative at the combine.
Pal Horvath, chief of the Budapest purchasing agency of the combine.
Nak (fnu), chief of the air-raid protection, Party member.

The combine is separated by a road into a southwestern portion which will be referred to as A portion, and a northeastern portion, which will be referred to as B portion.

Sandor Lovass, chief of the A portion, chemical engineer, expert
Alfred Donath, chief of the B portion, chemical engineer, expert
Party member.

3. The individual installations of the combine are designated with letters "A" through "K" and are headed by the installation managers:
Arpad Kalman, chemical technician, chief of the gas works and desulphurization plant of the "A" installation.
Peter Ceh, chemical engineer, chief of the oxygen plant of the "A" installation, graduate of the so-called "evening university", expert, Party member.

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Josef Sompai, engineer for machine construction of the chemical industry,

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Palotas (fnu), expert, Party member, graduate of the so-called "Red Academy",
Laszlo Suetos, chief foreman, and chief of the repair shop,

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Bela Ritter, graduate of the Miskolc industrial university, previously radio technician, chief of the "G" installation,

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Istvan Merekes, engineer for machine construction of the chemical industry, expert, chief of the "I" installation.
Lajos Hamor, engineer for machine construction, expert, chief of the "K" installation.

4. The combine was established approximately in 1950. The projecting of the combine was based on Western and Czech plans. Construction and assembly work was completed by August 1955. For the time being, a daily output of 40 railroad cars of fertilizer was planned, the production was, however, scheduled to be increased to a daily output of 60 railroad cars of fertilizer.

5. The combine is located in the valley of the Sajo River which passes approximately 2.5 km east of the combine. The area is flat except for hills in the southwest of the combine. Hills can also be seen in the distance to the north, east and south. The combine is surrounded by the following noticeable objects: the church of Kazincbarcika, the combine spur track branching off from the Ozd-Miskolc railroad line at the old Kazincbarcika railroad station and the sport grounds which are located north of the combine and measure approximately 100 by 50 meters.

6. The following installations of the combine are remarkable: the chimney of the boiler, a gasometer with a capacity of approximately 20,000 cubic meters which can be well made out from the air, two 30-meter-high cooling towers in the southeastern portion of the combine, the ammonia contact installation approximately 40 meters in height, and, the highest building of the combine, the fertilizer factory, the middle section of which is tower-shaped and measures 42 meters in height.

7. A normal-gauge spur track branching off at the old Kazincbarcika railroad station connects the combine with the Ozd-Miskolc railroad line. Within the area of the combine, it again forms branches serving the individual installations. Approximately 600 to 700 meters after leaving the combine, the spur track again joins the Ozd-Miskolc railroad line. Tracks for the parking of freight cars have been installed between Kazincbarcika and Sajoszentpeter. The combine has available coke cars equipped with an unloading mechanism particularly easy to handle. However, it does not have its own locomotives.

8. The following was obtained on the technical equipment of the combine:

   a. The central laboratory is equipped with a mass spectroscope. Since nobody could handle this device, it was not in operation. Allegedly, it is the first device of this type in Hungary and of foreign origin. In addition, the laboratory has available a primitive spectroscope of small output which was assembled in the laboratory.

   b. The central repair shop is equipped with approximately 5 drilling machines, 1 crosscut saw, 2 milling machines, 8 or 10 lathes and 1 shearing machine which may also be used for the cutting of 25-mm thick plates.

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c. The packing department is equipped with automatic sack-filling machines; the fertilizer storage, conveyor belts and one elevator are installed above these machines.

d. The car tipping installation consists of two tipping mechanisms installed opposite each other. This installation was assembled in 1955 and was manufactured by the MAVAG. The installation is in good shape.

e. The limestone crushing and grinding installation is equipped with a jolting feeder especially constructed for the combine at the plant for mining equipment at Kiskunfelegyhaza in 1955. The transversal rubber band and the rubber conveyor belt which is 40 meters long were also especially manufactured at the Kiskunfelegyhaza plant in 1955. The standing grate installed in front of the jaw crusher serves for the removal of small rocks. It was especially constructed for the combine by the plant for crushing machinery and was completed in 1956. Prior to 1956, a vibrator had been used. The jaw crusher is of type GANZ VIII and has an output of 60 tons/hour. It was manufactured by the plant for crushing machinery in 1955. The casting of the jaw crusher is porous, and the water and oil lines leak through circulating materials. This results in the formation of an oil-water emulsion. Therefore, grease instead of oil had to be used. The casting of the swing bearing container has cracked at several spots and had to be welded. When these deficiencies were discovered the crusher was to be exchanged, but the crusher scheduled for the exchange which was constructed in export version had the same deficiencies, as well as all the other crushers scheduled to be exported. The slanted rubber conveyor belt was manufactured at the Kiskunfelegyhaza plant for mining equipment [redacted] 25X1 and installed at the combine in 1955. In December 1956, the belt had to be exchanged. The installation is in good condition. The mobile conveyor belt for the fertilizer storage was constructed by the Kiskunfelegyhaza plant for mining equipment in 1955 [redacted] 25X1 Two feed belts were constructed by the Kiskunfelegyhaza plant for mining equipment in 1955 [redacted] 25X1 They feed the hammer mills with 25 tons of coarse gravel per hour. Two hammer mills of type GANZ were built by the plant for crushing machinery in 1955. They crush limestone pre-crushed on a size of 60 to 70 mm to kernels of 12 mm. The operation of the machinery is satisfactory. One slanted conveyor belt was constructed by the Kiskunfelegyhaza plant for mining equipment in 1955 [redacted] 25X1 A rubber conveyor belt which is similar to the slanted rubber conveyor belt is also available. Another mobile belt for the fertilizer storage is also available. Two plate feeders of type GANZ were constructed by the plant for crushing machinery in 1955. They feed the drying drum with close lime splinters. The feeders are of a good quality. Two gas combustion chambers of unknown type were installed in 1955 and serve for the production of hot air for the drying of limestone. Two ventilators are attached to the chambers for the production of the gas-air mixture. Two drying drums of type GANZ were constructed by the plant for crushing equipment in 1955. A rotating cell feeder was constructed by the plant for air-conditioning equipment at Albertfalva in 1955 and serves for the feeding of the ball mills with gravel. Two ball mills were constructed by the plant for crushing equipment in 1955. They have an output of 5 tons/hour. The engine of the ball mills was constructed

by the Budapest Electric and Cable Plant, formerly Siemens. Since the engine frequently ran hot, it had to be switched off frequently. Two spiral dust conveyors were manufactured by the Budapest Agricultural Machine Repair Shop and installed in the combine in the summer of 1956. They were not yet in operation in December 1956. The dust arrester installation was manufactured by the plant for air-conditioning equipment at Albertfalva in 1955 [redacted] 25X1 It serves for the collection of flying dust produced by the ball mill, for the sucking-off of the flying dust of the drying drums and for the removal of hot air used for drying.

f. The ammonium nitrate installation has available the following equipment: Two acid containers made of ceramic were installed in 1955. They proved, however, to be defective and were replaced by V_2A steel containers. One of the defective containers was replaced in December 1956; it was, however, not yet tested. The new containers were manufactured by the plant for machinery of the chemical industry and radiators (VGR) in Budapest. Two neutralizing columns of the Hobler system were constructed by VGR in 1955. Two aluminum lye containers, each of a capacity of 15 cubic meters of 75-percent ammonium nitrate, with precision regulation for the degree of neutralization were installed in 1955. Since acid-containing ammonium nitrates effect a high corrosion of the containers, they were to be replaced by V_2A containers. Three lye pumps were constructed in 1955. Upper lye containers were manufactured at the VGR plant of V_2A steel [redacted] 25X1 They were installed in the fall of 1956 and have a capacity of 4 cubic meters. The small pumps installed in 1955 were made of aluminum, they proved to be deficient and had to be replaced. Three lye evaporating devices with a heating surface of 80 square meters and horizontal systems were manufactured by the VGR plant in 1955. The devices which were not made of pure aluminum could not stand the corroding effect of the ammonium nitrate. Therefore the first device was replaced by a device made of V_2A steel in the fall of 1955, the second one in the spring of 1956, and the replacement of the third device is planned. Three vapor collectors were manufactured and installed by the VGR plant [redacted] 25X1 They are made of aluminum and are scheduled to be replaced by collectors made of V_2A steel. The expansion container for condensates was constructed by MAVAG in Gyoer [redacted] 25X1 Two ammonia blowers with a capacity of 2,500 cubic meters of German make were installed in 1955. 25X1 The ventilator blower was installed in 1955. Two air heaters were manufactured by the VGR plant in 1955. Four lye circulation pumps were installed in 1955. Two acid pumps of German type Mackensen were installed in 1956. One air compressor was delivered by the plant for radiation equipment in 1955. One water-jet vacuum pump was available to the combine. Three drip tubes were delivered by the VGR plant in 1955. They serve for the issue of waste steam from the ammonium nitrate. They are made of aluminum and have been highly affected by the ammonium nitrate. They were scheduled to be replaced during 1956; their replacement, was, however, not performed until late 1956. Two ammonium nitrate scales were built in 1955, according to special requirements of the combine. Three stirring

installations were constructed in 1955, according to a special design by the Lang machine factory. The aluminum heating coils of the installations were replaced by heating coils made of V2A steel. The other equipment of the installation consists of aluminum. Although it proved to be of good quality, experts fear the corrosion of it, and the combine ordered equipment made of V2A steel in 1956. Prior to late 1956, the new equipment had not yet been delivered.

8. The spraying tower and the fertilizer factory have available the following equipment: Two plate feeders of type GANZ were delivered by the plant for crushing equipment in 1955. The plate feeders are connected with the limestone dust storage which is located in the building of the fertilizer factory. Two limestone dust scales were constructed in the scales factory in Hodmezoevasarhely in 1955. Actually, the scales were used for the weighing of grain and there were permanent repairs. Therefore the required 20.5 percent of N2 contained in the fertilizer were hardly in existence. It was rumored that another type should be used, but no plans had been made prior to late 1956. Two rubber conveying plants were also available. The two 40-meter high elevators were constructed by the Kiskunfelegyhaza plant for mining equipment in 1955, according to special construction requirements by the combine. Three stirring installations, similar to those of the ammonium nitrate installations, were also available. One centrifugal hydroextractor was manufactured by the VGR plant in 1955. The container consists of a perforated cylinder. A scrape plow was constructed by the Maszolaj in Nagykanisza in 1955, according to special construction requirements of the combine. Four ventilators were constructed in the Albertfalva works in 1955, according to designs by the Technische Hochschule (Technical College). One shaking gutter was constructed by the Cooperative of Small Craft of the Machine Construction in 1955, according to special construction requirements of the combine. One indented roll-jaw crusher of type GANZ was constructed by the plant for crushing equipment in 1955. It did not come up to requirements and was reconstructed in the summer of 1956, according to a special design. Two slanted chain elevators were constructed by the Kiskunfelegyhaza plant for mining equipment in 1953. The construction, outward appearance and assembly of these elevators were of minor quality and they were regarded as dangerous in view of the safety of workers. They were being repaired in 1956, and it was planned to replace them by a slanted rubber conveyor belt. Two cooling drums of type GANZ were constructed by the plant for crushing equipment in 1955. Two rubber conveying plants were constructed by the Kiskunfelegyhaza plant for mining equipment in 1955, according to special construction requirements of the combine. Two vibrators of type GANZ were constructed by the Budapest plant for crushing equipment in 1955. Two smoothing roll installations of type GANZ were constructed by the plant for crushing equipment in 1955. Two powder drums of type GANZ were constructed by the plant for crushing equipment in 1955, according to special requirements of the combine. Two air cooling chambers were constructed by the Lang factory in 1955. They serve for the cooling of air for the cooling drum. The air is cooled by volatilizing ammonium. This type of cooling chamber was taken over from milk-processing enterprises.

The chamber was not yet in operation prior to late 1956. The ventilators for the cooling chambers were manufactured by the works for air-conditioning in 1955. Two dust-exhausting installations, so-called multicyclones, according to the system developed by van Tongeren, were constructed by the works for air-conditioning in 1955. The installations are equipped with 2 ventilators and 2 rotating cell feeders which serve for the exhaust of the dust loosened in the multicyclone. The dimensions of these installations are too large, but the efficiency is good.

h. The synthesis plant has available the following equipment: Three large compressors for the condensation of 10,000 cubic meters of gas with 350 atue were constructed by the MAVAG in 1955, according to special requirements. In the summer of 1956, one of the compressors exploded, after operational deficiencies had frequently occurred. The investigation proved that the low-quality casting and the incorrect construction of the compressor were responsible for this explosion. Due to the fact that the remaining two compressors are in a similar condition, they have been put out of operation since the summer of 1956. It is planned to procure new compressors from abroad. Two Pelton turbines were constructed by the GANZ factory in 1955. Their operation is not satisfactory. Four compressors were built by the machine factory "4 April" in 1955. Two or three copper lye pumps were also available. No further details could be determined. The ammonium combustion installation consisting of two turbo-compressors was built and installed [redacted] in 1955. Four "La Mont" boilers were manufactured by the Lang factory in 1955. Four ammonia burners were available. No further details could be determined. The assembly of the concentration installation for nitric acid was almost completed in the summer of 1956; assembly work was, however, discontinued. The installation of acid-resisting containers was performed by the machine factory of the chemical industry and radiator factory. An oxygen plant with 2 air compressor installations was also available. 25X1

9. Power for the combine is supplied by the compound network. If domestic power cannot be supplied, Czechoslovakia supplies power to the compound net. For example, during the October Revolution, the compound net was supplied with power by Czechoslovakia for some time. The steam turbine available for the power supply of the combine proved to be insufficient for covering power requirements. Therefore, it was not put into operation.

10. Steam for the combine is provided by a long-distance steam line coming from the Borsod heating power plant. The steam line consists of two pipes each with a diameter of 0.5 meters and several pipes each with a diameter of 0.3 meters. If the heating power plant cannot provide steam, a "Garbe" boiler which is available to the combine provides steam. Requirements can, however, only be covered by the "Garbe" boiler if the combine is not in full operation.

11. A water lifting installation, which is built at the same level as the combine, is located on the bank of the Sajo River. It serves for the industrial water supply of the combine and [redacted] with 2 pumps, each with an output of 250 liters/second. Underground containers for the industrial water are located near the combine

area. For the event of a temporary non-operation of the water lifting installation, a water basin with a capacity of 2,500 cubic meters has been excavated southwest of the combine at a slope.

12. No details were determined on the coke and coal supply of the combine. A coke shortage which was in existence in Hungary for some time considerably influenced the production output. The combine used Hungarian coarse limestone which was delivered approximately in the size of children's heads. Eight railroad cars of limestone were necessary for a daily output of 20 railroad cars of fertilizer. Limestone was provided by the quarry in Felnemedi.

13. Due to a compressor explosion on 18 June 1956, the combine was not in operation. Until production is taken up again, the combine crushes limestone for road construction firms. Prior to the shutdown of the combine, the main product of the combine was a fertilizer containing 20.5 percent of nitrogen. If this fertilizer was mixed with limestone powder, it was called "limestone ammonium saltpeter". It was also planned to manufacture oxygen as a main product. There were, however, no filling compressors available. After the explosion of one of the compressors, it was planned to import one compressor from abroad and to repair the two other ones. The ammonium surplus was to be utilized for the production of ammonia carbonate. The production of concentrated nitric acid, ammonium and of minor quantities of sulphur to be used as gas purifier was also planned.

14. The combine was scheduled to have a daily output of 20 railroad cars. The daily average production amounted, however, only to 17 railroad cars. It also occurred that production stopped for 1 or 2 weeks in a month due to operational deficiencies.

15. The most important customer of the combine was the enterprise for the utilization of fertilizers and plant protectives (Muetragya es Noevenyvedoszer Kertekesitoe Vallalat MUVENOESZER), which forwarded requirements of the individual agricultural production cooperatives to the combine. The combine shipped fertilizers in bags of 50 kg each to the individual destinations. No export orders were placed with the combine. In addition, the combine made no efforts to obtain orders due to the quality and irregularities in the production of fertilizers. For example, fertilizer produced by the fertilizer factory in Pet which was exported to Yugoslavia had to be taken back, because the fertilizer had become lumpy during storage. The Kazincbarcika combine had similar experiences. Hungarian customers claimed that the fertilizer arrived in the shape of a hard block.

16. The plant management is making efforts to improve the quality of the fertilizer. [redacted] 25X1

17. In December 1956, the combine employed approximately 1,200 persons including approximately 200 or 250 assigned to the administration of the combine. Due to the compressor explosion in the summer of 1956, it was planned to reduce the number of workers by 600 in January 1957. The dismissed workers were to be transferred to mines. Approximately 35 percent of the employees are women. Prior to 1953, most of the employees were forced laborers who had been

Soviet POWs. They were housed in barracks located outside of the combine and were not allowed to be in contact with other persons. They were gradually discharged up to 1953.

18. Work was done in 3 shifts each of 8 hours. Nobody was allowed to exceed the weekly working hours which amounted to 48, and overtime was not paid. Working quotas were introduced only in the repair shops of the combine, and so far, workers did not complain about too high quotas.

19. Once a year, a working dress made of linen and a pair of boots were issued. The combine is equipped with a kitchen. Lunch, consisting of soup, meat with vegetables or noodles, costs 4 Forint. Breakfast costs 1.50 and supper 3 Forint. Workers and employees are granted an annual leave of 12 days. The leave is increased by one day each for each additional year of employment. The maximum leave amounts to 24 days.

20. A so-called "provost detail" consisting of 30 or 40 men is stationed at the combine. Approximately 75 percent of this guard personnel are equipped with guns, the remainder has no weapons. One unarmed doorkeeper is located at the main entry of the management building and at each other entry of this building. He checks all persons. Two unarmed guards are located at the main entry of the combine and the two side entries are also guarded each by one unarmed doorkeeper. The entire combine is guarded by 4 or 5 sentries patrolling the combine during day and night.

21. The workers and employees of the combine are equipped with special passports with photographs indicating the working place of the worker or employee. Persons of higher rank such as the manager, chief engineer, the chief mechanic, the chief power expert, the chief technologist, the technologist, and the foreman have more freedom of action. Personnel of enterprises engaged in assembly and installation work at the combine are equipped with temporary entry permits. Official visitors and guests are issued a so-called "doorkeeper's slip" when entering the combine which has to be marked with the time of arrival and departure by the section of the combine visited. Air raid protection training is held every week. Only part of the workers and employees (approximately 250 or 300 persons) participate in this training. Air raid protection exercises are held every 2 or 3 months and include repair work on damage occurring, elimination of operational deficiencies caused by air raids and medical treatment of injured persons. Persons involved in air raid protection training are equipped with an overall, steel helmet and gas mask. This outfit is issued for the period of training.

1. [redacted] Comment: Vegyipariger - es Radiatorgyar. 25X1

[redacted] attachments pertaining to this report: 25X1

1. Sketch, with explanatory legend, showing the location of the Borsod Chemical Combine in relation to the town of Kazincbarcika and neighboring installations (Four pages).

2. Sketch, with explanatory legend, of the Borsod Chemical Combine, identifying the various buildings and providing information on the use of each (Eight pages).

3. Schematic diagram, with explanatory legend, showing the method of operation of the limestone crushing and grinding installation (Four pages),

4. Schematic diagram, with explanatory legend, showing the method of operation of the ammonium nitrate installation. (Four pages).

5. Schematic diagram, with explanatory legend, showing the method of operation of the spraying tower and fertilizer plant. (Four pages).

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Legend:

1 - Borsod Chemical Combine
2 - Water reservoir
3 - Air raid shelter (construction of which was stopped)
4 - Sporting grounds
5 - Water lifting installation
6 - Waste water lifting installation
7 - Coal sorting plant
8 - Heating plant

- Long-distance steam line
- Long-distance electric line
- Railroad line
- Highway

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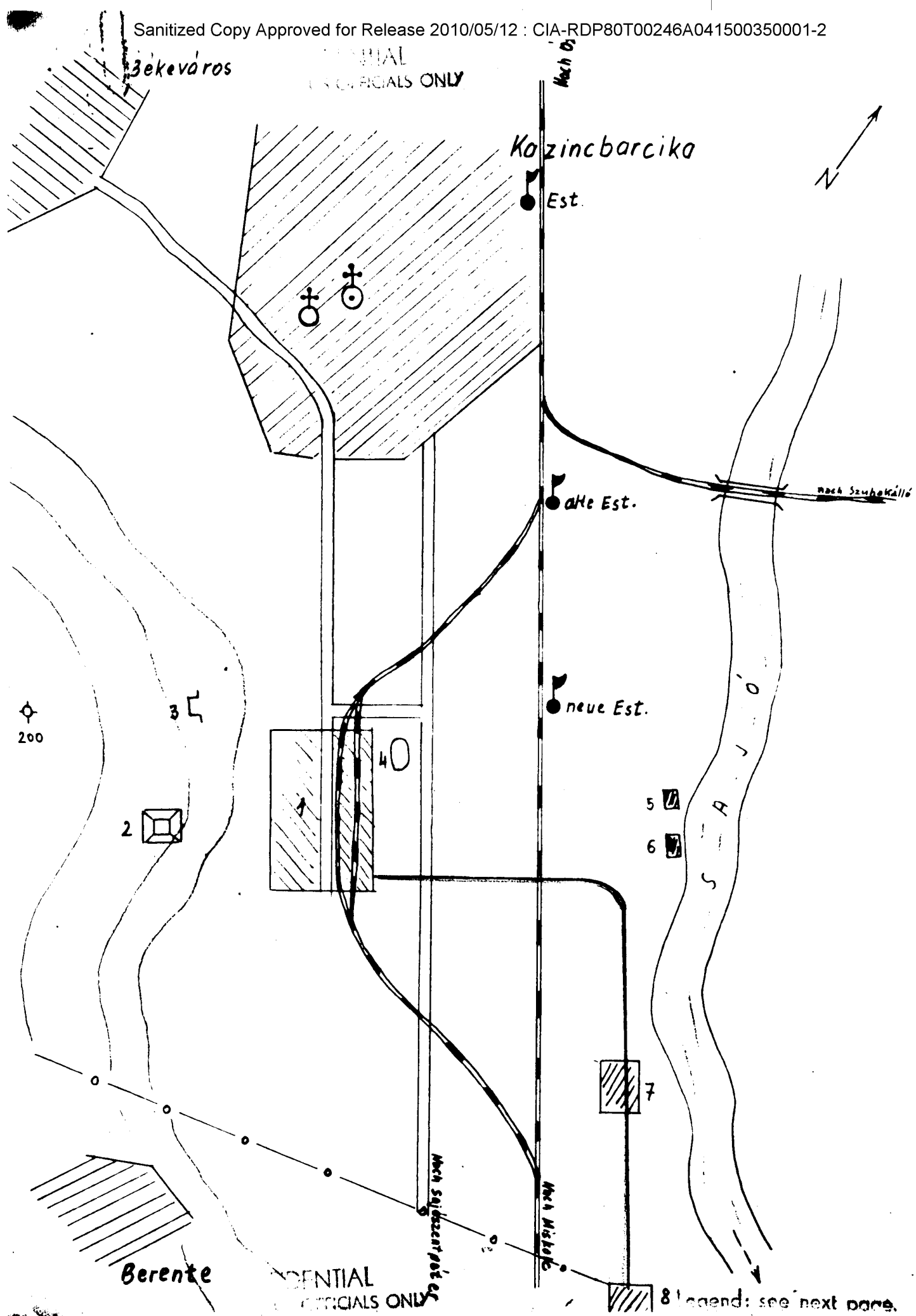


Legend:

1 - Management building: two stories, approximately 100 x 20 meters, reinforced concrete and brick building with flat roof, housing administrative offices. The switchboard and the secret offices (TUEK - Titkos Uegykezeles) with a teletypewriter are housed in the second floor of the northeastern portion of this building.

2 - Firehouse: flat 15 x 8-meter temporary building with brick roof.

3 - Boilerhouse: flat 16 x 10-meter and 12-meter hight temporary building with brick roof. Prior to October 1956, a ship boiler heating the management building was located there. After October 1956, the building was empty and used as storage facility.

4 - Central laboratory: 30 x 20-meter building with flat roof, housing the quality control section (MEO - Minoeseg Ellenoerzoe Osztaly), the central laboratory and the technological library. It is planned to instal a testing installation in this building.

5 - Central repairshop: For shape of the building, see attached sketch. The northwestern and the northeastern edge of the building measures approximately 60 meters, the middle section is approximately 20 meters wide and the building is 16 meters high. It houses the machine repairshop, the welding department, the electrotechnical repairshop, the tool-issuing department and the central depot.

6 - Several temporary flat buildings of varying length, all 10 meters wide with brick roofs. They house offices, repairshops, dressing rooms and depots of the individual assembly enterprises.

7 - Salt depot: 120 x 40-meter flat brick building with slate roof in which the finished fertilizer is stored.

8 - Packing department: two-stroy 60 x 16-meter building with iron concrete structure. The construction of the building had not yet been completed by November 1956. In this building, the finished fertilizer is packed into bags. In addition, the building houses the technical offices of the fertilizer factory, the fertilizer laboratory, a messhall for 150 persons, dressing rooms, showers, and a restroom for the MAV.

9 - Platform balance: 5 x 4-meter flat building with many windows; the platform balance has a carrying capacity of 100 tons.

10 - Two car tipping installations the tipping mechanisms of which measure approximately 3 x 1.8 meters and are approximately 1.8 meter high.

11 - Transformer house: 16 x 12-meter, 8-meter high brick building with iron concrete structure and brick roof. It provides power for the machinery of the fertilizer factory and for the illumination of the management building and housing facilities within the combine.

12 - Fertilizer factory: approximately 40 x 25-meter building with tower-like superstructure.

13 - Limestone crushing and grinding installation: 30 x 16-meter, 25-meter high iron structure with flat roof.

14 - Spraying tower: 30-meter high cylindrical tower, 19 meters in diameter, built of clinker bricks. It serves for the cooling-down of the fertilizer.

15 - Two acid containers: one cylinder-shaped 7-meter high container, made of V2A steel, with a capacity of 200 cubic meters, and a 6-meter high container made of clay tiles, with a capacity of 150 cubic meters.

16 - Two storage buildings: 25 x 10-meter, 7-meter high brick buildings with slate roof and connected to each other by one wall, similar to so-called "Czech barracks". They serve for the storage of pumps, sheet metal, rod iron, etc.

17 - Ammonium gasometer, equipped with a telescope, with a capacity of 2,000 cubic meters.

18 - Approximately 8 containers, cylinder-shaped, 8 meters in height and 1.5 meters in diameter, for the storage of NH_3.

19 - Contact installation: 16 x 14-meter, 40-meter high iron concrete tower with flat roof, serves for the production of ammonium.

20 - Copper lye regenerators: 18 to 20-meter high towers.

21 - Copper lye washing installations: 18 to 20-meter high towers.

22 - Synthesis installation: 60 x 30-meter, 25-meter high iron concrete building with flat roof, serves for the production of gases used for synthetical processes.

23 - Carbon dioxide washing installations: 2 cylinder-shaped 25-meter high metal containers with a diameter of 1.5 meters.

24 - Water gas converters: 3 cylinder-shaped 25-meter high towers of a diameter of 1.5 meters.

25 - Balcke towers: 2 cylinder-chaped 25-meter high towers of a diameter of 15 meters. They are made of iron concrete and the lower third is equipped with 20 to 30 ventilators which are arranged in the form of a rim.

26 - Administrative buildings: 300 to 350-meter long row of an unidentified number of buildings.

27 - Ball pressure boilers: 3 boilers, each with a diameter of 8 meters.

28 - Gasometer with a capacity of 20,000 cubic meters.

29 - Transformer house: Iron concrete structure with flat roof.

30 - Absorption towers made of V2A steel.

31 - Ammonium combustion: 40 x 35-meter, 25-meter high iron concrete building with flat roof.

32 - Temporary boilerhouse, equipped with a MAOR boiler.

33 - Concentration of nitric acid: 40 x 35-meter, 30-meter high iron concrete building with flat roof. The construction of this building has not yet been completed, and construction work was discontinued in 1956.

34 - Cold storage.

35 - Transformers, housed in iron concrete buildings.

36 - dto.

37 - Steam pressure regulation: approximately 30 x 25-meter, approximately 16-meter high iron concrete structure with flat roof. In this building, the pressure of the steam provided by heating power plants via long-distance lines is reduced from 24 atue to 12 and/or 4 atue.

38 - Transformer, housed in an iron concrete building.

39 - Desulphurization: 30 x 16-meter, 15-meter high building which serves for the desulphurization of gas produced in the gas works of the combine.

40 - Oxygen plant: 40 x 20-meter, 20-meter high iron concrete building with flat roof, serves for the production of oxygen.

41 - 2 gasometers: one oxygen gasometer, equipped with a telescope, with a capacity of 2,000 cubic meters, and a nitrogen gasometer, also equipped with a telescope, with a capacity of 3,000 cubic meters.

42 - Gas works: 50 x 20-meter, 20-meter high building with a steel structure lined with bricks, flat roof. Serves for the production of gases required for synthesis.

43 - GARBE boilerhouse: 20 x 15-meter, 20-meter high building. This building was not planned within the original construction plans, but the construction of it became necessary due to slow progress of construction work at the heating power plant. The boilerhouse is to achieve the independence of the combine on steam deliveries by the heating power plant.

44 - Platform balance: belongs to the gas works and serves for the weighing of coke cars.

45 - Water storage basin and pump house: the pump house measures 40 x 20 meters and is 10 meters high. It is an iron concrete building with a flat roof and serves for the conveyance of cooling water flowing back from the individual installations to the cooling towers and for distributing it again by means of a pipeline installed within the combine.

46 - Water softening installation: 40 x 18-meter, 12-meter high iron concrete building with flat roof. Serves for the production of water of 4 degrees (German degrees of hardness) and for the production of water required by the boilers.

47 - Settling basin for slaked lime: iron concrete structure which serves for the settling of slaked lime released by the reactors and the limewater saturating installations.

48 - Cooling towers: 2 approximately 30-meter high hyperbolic iron concrete cooling towers with a diameter of 30 meters. They serve for the cooling-down of the cooling water.

49 - Air raid shelter: tunnel-shaped iron concrete structure built into the slope near the combine. The construction of the shelter was discontinued in 1953.

50 - Housing facilities: Seven three-story brick buildings with slate roof, each measuring 25 x 18 meters. Each floor of these buildings has 4 apartments. Apartments in the southwestern portion of each building have 3 rooms, the remainder 2 rooms. Each apartment is equipped with an entree, a kitchen, a bathroom, a pantry and a toilet. The installation of heating facilities and gas mains was under preparation as late as December 1956. The apartments house personnel which is important for the operation of the combine.

51 - Storage building: 12 x 5-meter, approximately 5-meter high brick building with a temporary brick roof.

52 - Chemotechnikum: three-story iron concrete building, measuring 40 x 14 meters, with flat roof. The building originally was constructed as billets for the factory police and the "provost detail". A Technikum , presumably from Szeged, was transferred to this building at an undetermined date.

53 - Garages and administrative rooms for the passenger traffic: temporary building with brick roof. The parking lot of the MAVAUT transportation firm which provides transportation facilities for the workers of the combine is located here. In addition, the building houses a KOEZERT shop.

54 - Various administrative buildings.

55 - Sporting grounds: approximately 160-meter long grass field with soccer goals and ash racing course. The field is surrounded by grass-covered seats for spectators.

56 - Waste-water purification: acid-containing waste water is neutralized before it is released into the Sajo River.

57 - Biological waste-water purification plant: waste water collected from the combine and the housing facilities is sprayed on a biological installation which neutralizes impure contents of the water. After this procedure, the water is released into the Sajo River.

58 - The so-called "MAKADAM" Camp: major number of temporary brick buildings with brick roofs, housing construction workers and a KOEZERT shop.

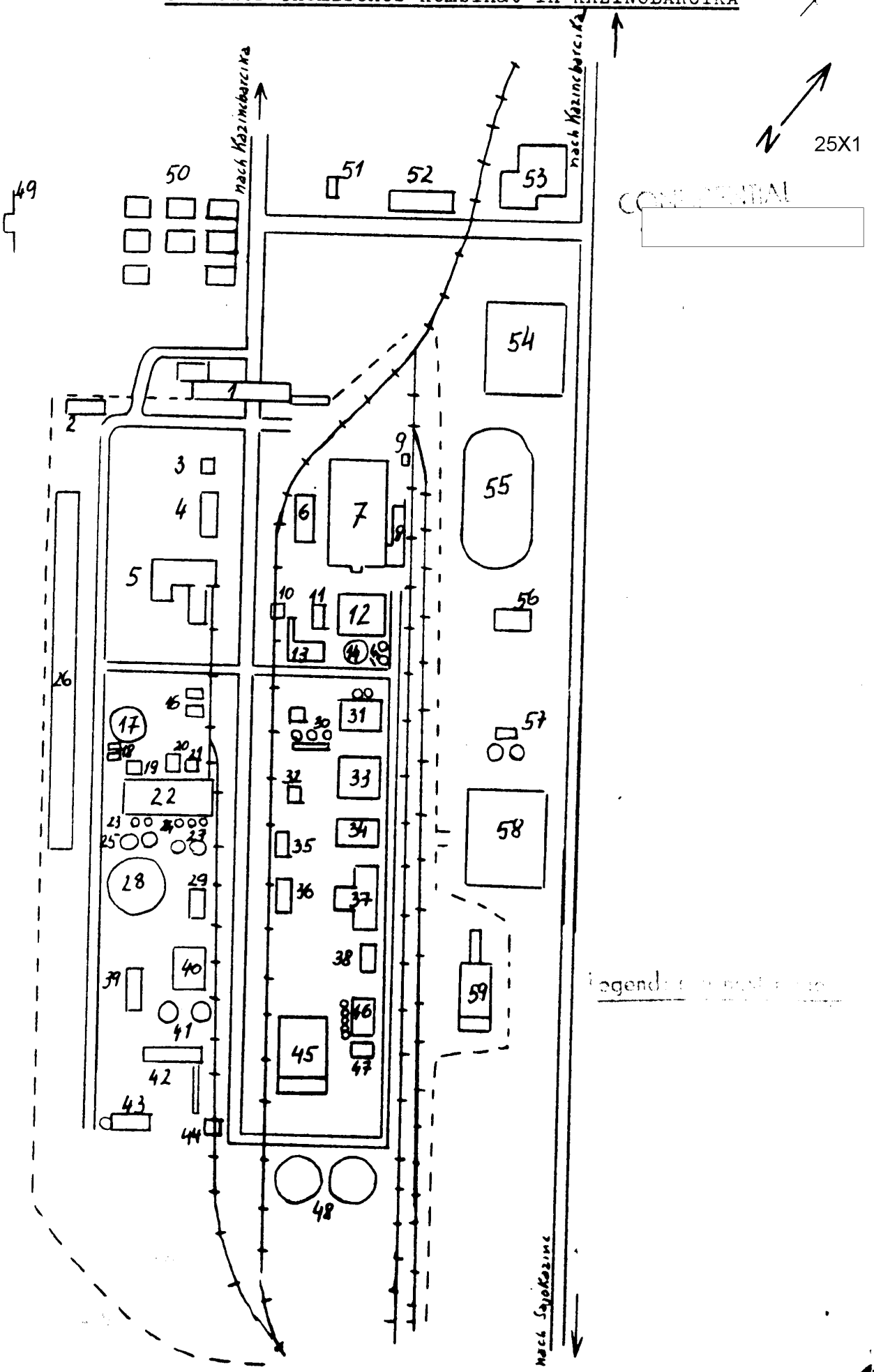
59 - Sand trap and sand-settling basin, pump house:

a. Water pumped to the combine is directed through a sand trap consisting of a 10-meter long channel with a diameter of 2 meters.

b. The sand-settling basin has a capacity of approximately 1,500 cubic meters and is equipped with a scraping installation. The sand is piled up in a ditch and sucked off by a slake pump.

c. The pumphouse is equipped with 2 pumps.

Borsoder Chemisches Kombinat in KAZINCBARCIKA



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CONFIDENTIAL

Legend

Legend:

Working Method of the Limestone Crushing and Grinding Installation

1 - tipping installation

2 - " "

3 - jolting feeder

4 - transversal rubber band

5 - 40-meter long rubber conveyor belt

6 - standing grate

7 - jaw crusher

8 - slanted rubber conveyor belt

9 - loading installation for the fertilizer dump

10 - Iron-concrete dump with a capacity of approximately 80 railroad cars of coarse limestone

11 - 2 feeders and cell conveyor belt

12 - 2 cell feeders

13 - hammer mills

14 - slanted conveyor belt

15 - rubber conveyor belt

16 - loading installation for the fertilizer dump

17 - 2 iron-concrete dumps with a capacity of each 8 railroad cars of fine gravel

18 - 2 plate feeders

19 - 2 gas combustion chambers

20 - 2 drying drums

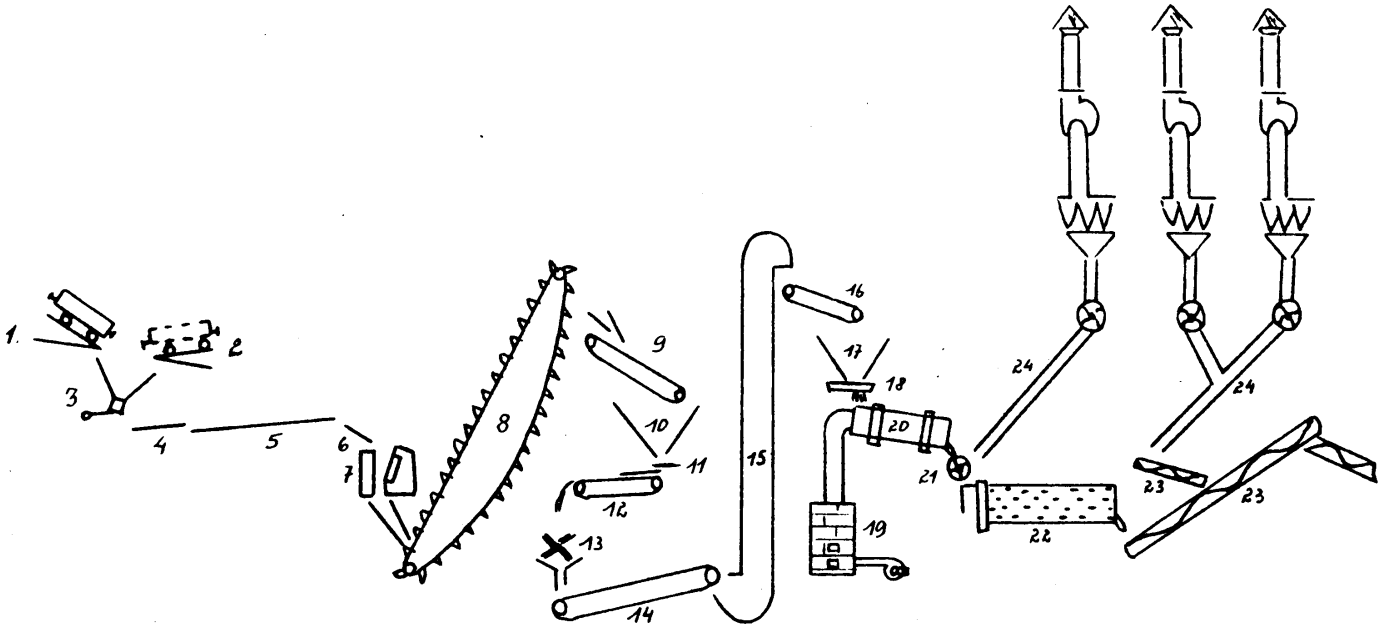
21 - rotating cell feeder

22 - 2 ball mills

23 - 2 spiral dust conveyors

24 - dust arrester installation

The limestone crushing and grinding installation has a daily output of 170 tons of limestone powder.



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Attachment 4

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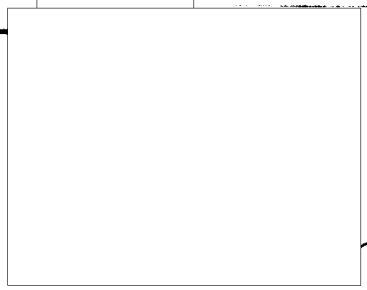

Legend:

Working Method of the Ammonium Nitrate Installation

1 - 2 acid containers

2 - 2 neutralizing columns

3 - 2 lye containers with precision regulation, each with a capacity of 15 cubic meters

4 - acid containers

5 - rotameter

6 - 4 lye feeding pumps

7 - large upper lye container with a capacity of 4 cubic meters

8 - 3 lye evaporating devices

9 - vapor collectors

10 - expansion container for condensates

11 - 2 ammonia blowers

12 - 2 ventilator blowers

13 - 2 air heaters

14 - 4 lye circulation pumps

15 - 2 acid pumps

16 - water-jet vacuum pump

17 - air compressor

18 - 3 drip tubes

19 - 2 ammonium nitrate scales

20 - 2 stirring installations

The installation has a daily output of 242.8 tons of 95-perdent NH_4NO_3, per

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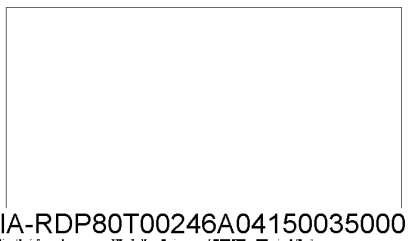
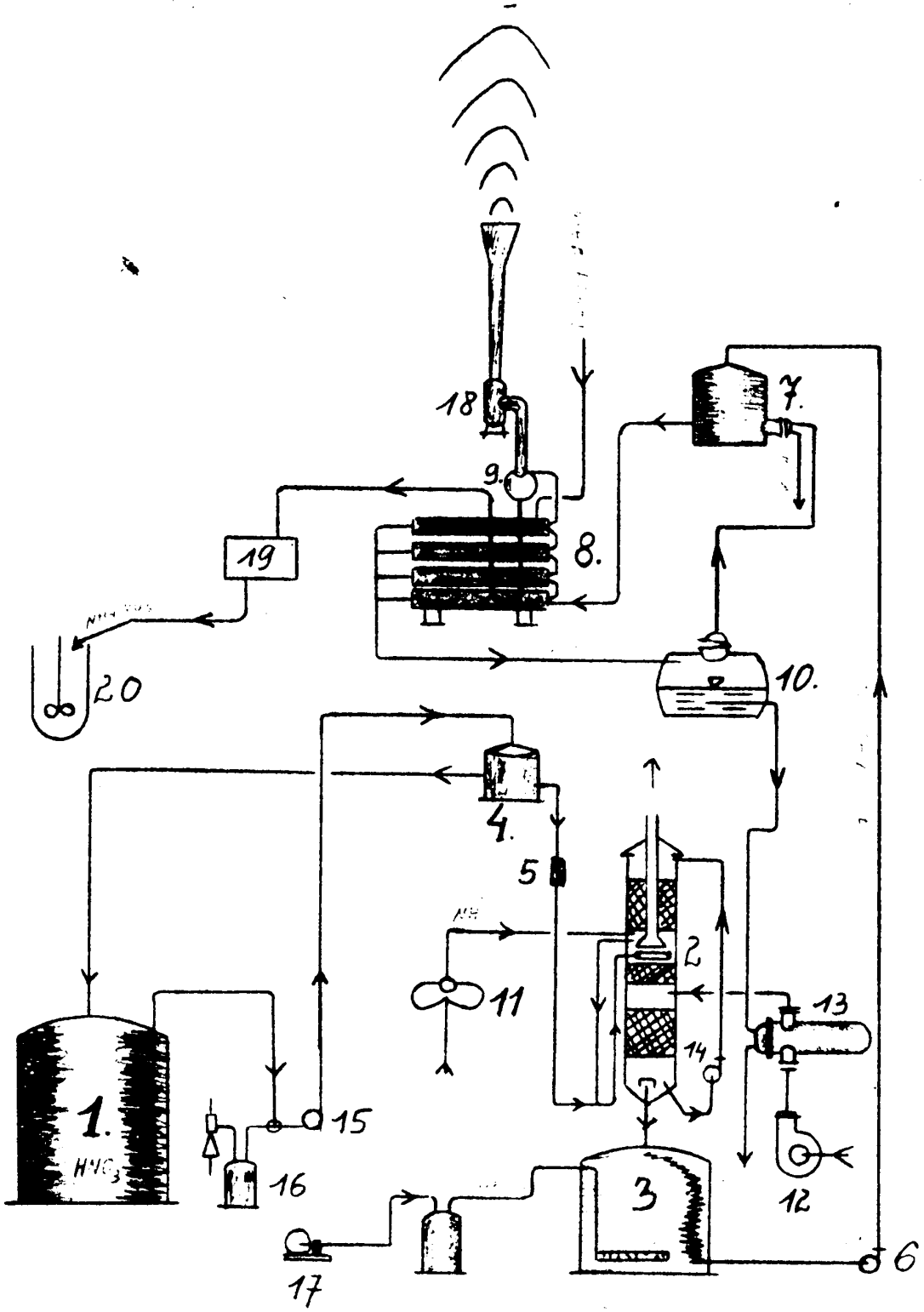


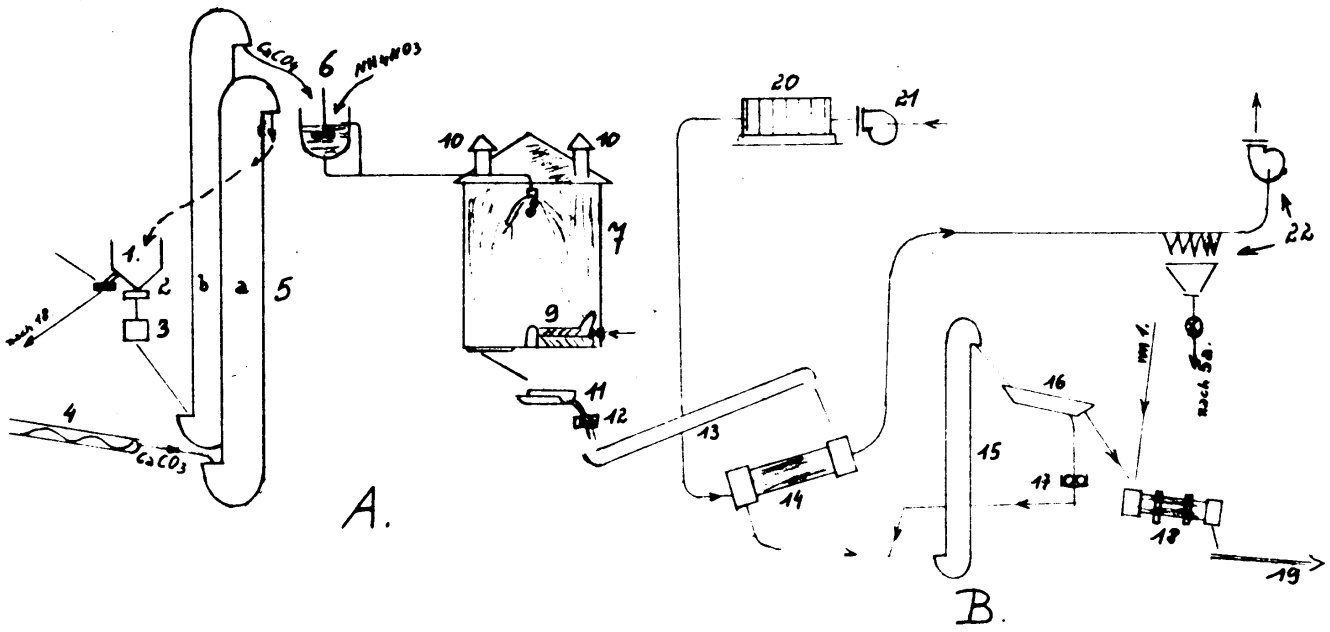


see next page.

Legend:

Working Method of the Spraying Tower and Fertilizer Fa

A - Spraying tower
B - Fertilizer factory
1 - Limestone dump, made of iron concrete, with a capacity of approximately 16 railroad cars, housed in the building of the fertilizer factory
2 - 2 plate feeders
3 - 2 limestone dust scales
4 - Dust conveyor installations coming from the limestone crushing and grinding installation
5 - 2 rubber conveying installations
6 - 3 stirring installations
7 - Spraying tower
8 - Centrifugal hydroextractor
9 - Scrape plow
10 - 4 ventilators
11 - Shaking gutter
12 - Indented roll-jaw crusher
13 - 2 slanted chain elevators
14 - 2 cooling drums
15 - 2 rubber conveying plants
16 - 2 vibrators
17 - 2 smoothing roll installations
18 - 2 powder drums
19 - Conveying belt, connecting the fertilizxr factory with the storage dump
20 - Air dooling chambers
21 - 2 ventilators
22 - Dust-exhausting installation



Legend: see next page.